

A STUDY TO ASSESS THE EFFECTIVENESS OF CPR TRAINING PROGRAM ON KNOWLEDGE AND PRACTICE SKILL REGARDING CARDIOPULMONARY RESUSCITATION AMONG BSC NURSING STUDENTS OF SELECTED NURSING COLLEGES, KOLLAM.”

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ABSTRACT

A quantitative study was conducted to assess the effectiveness of a CPR training program on knowledge and practice skill regarding cardiopulmonary resuscitation among B.Sc. Nursing students of selected nursing colleges, Kollam. A quasi-experimental one-group pretest-posttest research design was used, and a non-probability convenience sampling technique was adopted to select 60 third semester B.Sc. Nursing students. Data were collected using a socio-demographic proforma, a structured knowledge questionnaire (30 items), and a practice checklist (15 steps). The results showed that the mean pretest knowledge score was 16.01 (SD = 4.7), which increased to a mean posttest score of 20.33 (SD = 4.01); the calculated paired ‘t’ value was 28.19 (df = 59, p = 0.000), which is highly significant. The mean pretest practice skill score was 8.47 (SD = 2.9), which increased to a mean posttest score of 11.6 (SD = 2.5); the calculated paired ‘t’ value was 26.08 (p = 0.00), which is significant at the 0.05 level. There was no significant association between pretest knowledge and practice skill scores with selected socio-demographic variables such as age, gender, area of residence, and previous exposure to certified CPR training. The study concluded that the CPR training program was effective in significantly improving the knowledge and practice skills of B.Sc. Nursing students regarding cardiopulmonary resuscitation.

KEYWORDS: CPR Training Program, Cardiopulmonary Resuscitation, B.Sc. Nursing Students.

INTRODUCTION

Cardiovascular diseases (CVDs) are the leading global cause of death, accounting for an estimated 17.3 million deaths annually, a figure projected to exceed 23.6 million by 2030.^[1] Coronary artery disease is the leading cause of cardiac arrest and sudden cardiac death; sudden cardiac arrest is the abrupt cessation of cardiac activity, leaving the victim unresponsive with no normal breathing or signs of circulation, and is reversible through timely cardiopulmonary resuscitation (CPR).^[2]

Sudden Cardiac Arrest (SCA) is a critical medical emergency in which, if untreated, death can occur within minutes.^[3] Immediate, high-quality CPR can double or triple survival chances by maintaining blood flow to vital

organs until advanced care arrives. According to the American Heart Association, CPR is an emergency life-saving procedure consisting of chest compressions and artificial respiration performed when the heart stops beating.^[5,6]

In India, sudden cardiac arrest accounts for approximately 500,000–600,000 deaths annually, and survival rates remain low as many victims do not receive timely CPR.^[9] In Kerala, around 25,000 (10%) deaths occur annually due to sudden cardiac arrest. The Kerala state government’s Hridayapoorvam project has trained thousands of individuals across schools, workplaces, and public settings, training around 4,601 people in its first phase.^[10,11] The World Health Federation reports that less

than 1% of Indians presently know how to perform CPR.^[12] As future frontline healthcare providers, nursing students must be proficient in CPR to ensure prompt initiation of Basic Life Support and improve patient survival outcomes, which motivated the present study.

STATEMENT OF THE PROBLEM

A study to assess the effectiveness of a CPR training program on knowledge and practice skill regarding cardiopulmonary resuscitation among B.Sc. Nursing students of selected nursing colleges, Kollam.

OBJECTIVES

1. To assess knowledge regarding cardiopulmonary resuscitation among B.Sc. Nursing students of selected colleges.
2. To assess practice skill regarding cardiopulmonary resuscitation among B.Sc. Nursing students of selected colleges.
3. To evaluate the effectiveness of the CPR training program on knowledge regarding cardiopulmonary resuscitation.
4. To evaluate the effectiveness of the CPR training program on practice skill regarding cardiopulmonary resuscitation.
5. To find out the association between pretest knowledge score and selected demographic variables.
6. To find out the association between pretest practice skill score and selected demographic variables.

HYPOTHESES

H1: There is significant difference between the mean pretest and posttest knowledge scores regarding CPR among B.Sc. Nursing students.

H2: There is significant association between pretest knowledge score and selected demographic variables.

H3: There is significant difference between the mean pretest and posttest practice skill scores regarding CPR.

H4: There is significant association between pretest practice skill score and selected demographic variables.

OPERATIONAL DEFINITIONS

Effectiveness: The significant gain in knowledge and practice of B.Sc. Nursing students regarding CPR after the training program, measured by a knowledge questionnaire and practice checklist.

Knowledge: The understanding and awareness of B.Sc. Nursing students regarding CPR procedures, assessed through a structured questionnaire before and after the training.

Practice Skill: The psychomotor performance and ability to demonstrate CPR skills, evaluated using an observational checklist during pretest and posttest.

CPR Training Program: A structured teaching session including demonstration, return demonstration, and supervised practice on CPR based on AHA guidelines.

ASSUMPTIONS

1. Nursing students may have varying levels of knowledge and practice skill regarding CPR.

2. CPR training can improve knowledge and skill.

METHODOLOGY

Research Approach: A quantitative research approach was used to find out the effectiveness of the CPR training program on knowledge and practice skill among B.Sc. Nursing students.

Research Design: A quasi-experimental one-group pretest-posttest research design was used.

Setting of the Study: The study was conducted at N.S. Memorial College of Nursing, Kollam.

Population: The population comprised third semester B.Sc. Nursing students studying at N.S. Memorial College of Nursing, Kollam.

Sample and Sampling Technique: A total of 60 third semester B.Sc. Nursing students were selected using non-probability convenience sampling technique.

Criteria for Selection of Sample

Inclusion Criteria

- B.Sc. Nursing students at selected colleges, Kollam, of either gender, aged 18–30 years.

Exclusion Criteria

- Students already trained/certified in CPR within the last 6–12 months, unwilling to participate, absent during data collection, or unavailable for both pretest and posttest.

Tools and Technique

Tool 1: Socio-demographic proforma covering age, gender, area of residence, and previous exposure to certified CPR training.

Tool 2: A structured knowledge questionnaire with 30 multiple choice questions (1 mark each, maximum score 30). Interpretation: 0–15 – poor knowledge; 16–22 – moderate knowledge; 23–30 – good knowledge.

Tool 3: A 15-step practice checklist (1 mark per correctly performed step, maximum score 15). Interpretation: ≤8 – poor practice; 9–12 – average practice; 13–15 – good practice.

Content validity was established through expert review across Medical Surgical, Child Health, Community Health, Mental Health, and Obstetrical & Gynaecological Nursing. Reliability of the knowledge questionnaire was established by the split-half method, and the practice checklist was standardized using clear scoring criteria. A pilot study was conducted on 6 samples at Holy Cross College of Nursing, Kollam.

Data Collection Process

After ethical approval, the main study was conducted in February 2026. Pretest was administered to assess baseline knowledge and practice, followed by the CPR training program; posttest was conducted 7 days later using the same tools to evaluate effectiveness.

RESULTS AND DISCUSSION

The findings are organized under the following sections:

Section A: Distribution of socio-demographic variables.
Section B: Distribution of pretest and posttest knowledge scores.

Section C: Distribution of pretest and posttest practice skill scores.

Section D: Association between pretest scores and demographic variables.

Section A: Distribution of Demographic Variables

- 100% of the B.Sc. Nursing students belonged to the age group 18–20 years.
- 85% of the subjects were female and 15% were male.
- 73% of the subjects were from a rural area and 27% from an urban area.
- 98% had no previous exposure to certified CPR training, while 2% had previous exposure.

Section B: Knowledge Scores

Before the training, 46.70% of students had poor knowledge, 45% had moderate knowledge, and 8.30% had good knowledge. After the training, 50% had moderate knowledge, 40% had good knowledge, and only 10% had poor knowledge (Table 1).

Table 1: Effectiveness of CPR training on knowledge. (n=60)

Test	Mean	SD	t (df)	p
Pretest	16.01	4.7	28.19 (59)	0.000**
Posttest	20.33	4.01		

**Significant at $p < 0.05$

Section C: Practice Skill Scores

Before the training, 53.30% of students had poor practice skill, 33.40% had average practice skill, and 13.30% had good practice skill. After the training, 50% had good practice skill, 40% had average practice skill, and only 10% had poor practice skill (Table 2).

Table 2: Effectiveness of CPR training on practice skill. (n=60)

Test	Mean	SD	t (df)	p
Pretest	8.47	2.9	26.08 (59)	0.00*
Posttest	11.6	2.5		

*Significant at $p < 0.05$

The calculated paired 't' values for both knowledge (28.19) and practice skill (26.08) scores were greater than the table value at the 0.05 level of significance, confirming that the CPR training program was effective in improving both knowledge and practice skills of B.Sc. Nursing students regarding CPR.

Section D: Association with Demographic Variables

Chi-square analysis revealed no significant association between pretest knowledge scores and gender ($\chi^2 = 1.863$, $p = 0.394$), area of residence ($\chi^2 = 0.638$, $p = 0.727$), or previous CPR exposure ($\chi^2 = 1.330$, $p = 0.514$). Similarly, no significant association was found between pretest practice skill scores and gender ($\chi^2 = 5.490$, $p =$

0.064), area of residence ($\chi^2 = 0.969$, $p = 0.616$), or previous CPR exposure ($\chi^2 = 0.890$, $p = 0.641$). These findings indicate that the level of knowledge and practice skill was not influenced by the selected socio-demographic variables.

These results are consistent with earlier studies. Bhuvaneshwari et al. reported that 87% of the general population in Chennai had inadequate CPR knowledge, only 11% had moderate knowledge, and 2% had adequate knowledge, underscoring the widespread knowledge gap that structured training programs like the present one seek to address.^[43] Similarly, Maurya et al. found that among nursing students in Agra, 38.3% had poor knowledge and 100% demonstrated poor practical skills, reinforcing the need for structured, hands-on CPR training as implemented in the present study.^[18]

CONCLUSION

The present study assessed the effectiveness of a CPR training program on knowledge and practice skill regarding cardiopulmonary resuscitation among B.Sc. Nursing students of selected nursing colleges, Kollam. The mean posttest knowledge score (20.33) was significantly higher than the mean pretest score (16.01), with a paired 't' value of 28.19 ($p = 0.000$). Likewise, the mean posttest practice skill score (11.6) was significantly higher than the mean pretest score (8.47), with a paired 't' value of 26.08 ($p = 0.00$). No significant association was found between pretest scores and selected demographic variables. The findings confirm that the CPR training program was effective in improving both the knowledge and practice skills of B.Sc. Nursing students, highlighting the importance of structured, hands-on CPR training in preparing future healthcare providers to respond effectively to cardiac emergencies.

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